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Application Number: 09/864,581

Filing Date: 5/24/2001

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1. Fee Transmittal
2. Appeal Brief

Total pages including cover sheet: 26

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FEE TRANSMITTAL For FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.47

TOTAL AMOUNT OF PAYMENT (\$) 340.00

Complete if Known

Application Number: 03/864,581
Filing Date: 1/24/2001
First Named Inventor: David Reddome
Examiner Name: Tho V Duong
Art Unit: 3743
Attorney Docket No.: 1100099012

METHOD OF PAYMENT (check all that apply)

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description

Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent 50 25

Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent 200 100

Multiple dependent claims 160 180

Total Claims

Extra Claims Fee (\$) 50 **Fees Paid (\$)**

HP = highest number of total claims paid for, if greater than 20

Independent Claims

Extra Claims Fee (\$) 200 **Fees Paid (\$)**

HP = highest number of independent claims paid for, if greater than 3

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s)

Total Sheets **Extra Sheets** **Number of each additional 50 or fraction thereof** **Fee (\$)** **Fees Paid (\$)**

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4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount) 340.00

Other: Appeal Brief

SUBMITTED BY

Signature: [Signature] Registration No. 4/28/73 Telephone (509) 324-9256

Name (Print/Type): Brian J. Pangre Date 8-8-05

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No.09/864,581
Filing Date May 24, 2001
Inventorship Beddome
Assignee Honeywell
Group Art Unit 3743
Examiner T. Duong
Attorney's Docket No. H90099012
Title: Heat Exchanger with Stiffening and Load Bearing

APPELLANT'S OPENING APPEAL BRIEF
RE: NOTICE OF APPEAL FILED JUNE 7, 2005

15 To: Honorable Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

20 From: Brian J. Pangre
Lee & Hayes, PLLC
421 W. Riverside Avenue, Suite 500
Spokane, WA 99201

25 Pursuant to 37 C.F.R. §41.37, Appellant hereby submits an opening
appeal brief for application 09/864,581, filed May 24th, 2001, within two months
of the requisite time from the June 7, 2005 filing of the Notice of Appeal.
Accordingly, Appellant appeals to the Board of Patent Appeals and
Interferences seeking review of the Examiner's rejections of the Final Office
30 Action of February 8, 2005.

PAGE 3/26 * RCVD AT 8/8/2005 5:09:49 PM [Eastern Daylight Time] * SVR:USPTO-EFAXRF-6/32 * DNIS:2738300 * CSID:509 323 8979 * DURATION (mm-ss):05-20

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1. Real Party in Interest

The real party in interest is Honeywell Corporation, the assignee of all right, title and interest in and to the subject invention.

5 2. Related Appeals and Interferences

Appellant is not aware of any other appeals, interferences, or judicial proceedings that will directly affect, be directly affected by, or otherwise have a bearing on the Board's decision to this pending appeal.

10 3. Status of Claims

Claims 35-37 are objected to, claims 53-55 are allowed and claims 27, 28, 30-32, 34, 41-48 and 50-52 are rejected. The rejections of Claims 27-28, 30-32, 34, 41-48 and 50-52 are appealed.

The history of the claims is as follows:

- 15 a. Claims 1-26 were originally filed.
- b. In a Preliminary Amendment dated May 21, 2002, claims 1-26 were cancelled and new claims 27-52 were added.
- c. In the Preliminary Amendment, a Provisional Election of Species elected new claims 27-28, 30-32, 34-37, 41-48, 47-48 and 50-52. Claims 29, 20 33, 38-40 and 49 were withdrawn from consideration.
- d1. In an Office Action of December 12, 2003, the Office allowed claim 52; objected to claims 35-37, 41-44 and 51; and rejected claims 27, 28,

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30-32, 34, 45-48 and 50. Appellant further notes that an Examiner Interview was held on May 19, 2003 and an Interview Summary was mailed on May 30, 2003.

d2. In a Response to the December 12, 2003 Office Action, Applicant
5 amended claims 27 and 47.

e1. In an Office Action of June 14, 2004, the Office rescinded the allowance of claim 52; objected to claims 35-37 and rejected claims 27, 28, 30-32, 34, 41-48 and 50-52.

e2. In a Response to the June 14, 2004 Office Action, Applicant
10 amended claims 27 and 47 and represented claims 35-37 as new claims 53-55.

f1. In a Final Office Action of February 8, 2005, the Office rejected claims 27, 28, 30-32, 34, 41-48 and 50-55 and objected to claims 35-37.

f2. In a Response to the February 8, 2005 Final Office Action
15 ¶12. amended claim 53 for purposes of overcoming a rejection under 35 USC §112.

f3. In an Advisory Action Before the Filing of an Appeal Brief (Part of Paper No. 20050505) of May 10, 2005, the Office indicated that the amendment to claim 53 overcame the 35 USC §112, ¶12 rejection and that claims 53-55 were allowed, claims 35-37 objected to, and claims 27, 28, 30-32, 34, 41-48
20 and 50-52 rejected. Claims 29, 33, 38-40 and 49 stand withdrawn.

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4. Status of Amendments

The Final Office Action, which is the subject of this Appeal, was mailed February 8, 2005 (herein the "Final Office Action").

The Office mailed an Advisory Action Before the Filing of an Appeal Brief on May 10, 2005, after which Appellant filed a Notice of Appeal dated June 7, 2005.

Applicant believes that all amendments have been entered. In particular, Applicant believes that the amendment to claim 53 in the response to the Final Office Action was entered as the Advisory Action indicated allowance of Claim 53.

5. Summary of Claimed Subject Matter

The rejected claims include three independent claims: 27, 47 and 52.

The subject matter of rejected independent claim 27 pertains to a heat exchanger that includes a core having a heat exchange portion, a fluid-permeable metal tube wherein at least a portion extends into the core, a load bearing member positioned adjacent to the heat exchange portion of the core and a mount positioned between the tube and the load bearing member.

Of particular note, independent claim 27 recites a motion limiter "to limit upward or downward axial motion of the tube" whereby a load bearing member "can receive loads from the tube via the motion limiter". As described in the specification and shown in the drawings, the term "limit" refers to limiting axial

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motion of the tube, i.e., it does not fix the tube as to prevent upward or downward axial motion that results from differential thermal expansion. To clarify this point, consider thermal cycling and thermal expansion of a tube. Heating causes thermal expansion of the tube, i.e., axial motion. Cooling causes thermal contraction of the tube, i.e., axial motion. Other components may also expand and contract. Where components expand or contract differently, differential thermal expansion occurs. Thus, the instant application pertains to a mechanism that includes a "motion limiter" that allows limited movement of an inlet tube in response to differential thermal expansion.

10 Further, in claim 27, a load bearing member "can receive loads from the tube via the motion limiter".

With respect to the phrase "to limit upward or downward axial motion of the tube", as described in the record (see, e.g., the specification at page 16, lines 22-25 and Response to Final Office Action of February 8, 2005), as

15 already mentioned, such axial motion is a consequence of differential thermal expansion or contraction. Whether the "motion limiter" is to limit upward axial motion of the tube or is to limit downward axial motion of the tube depends on whether upward motion of the tube occurs or whether downward motion of the tube occurs (e.g., differential thermal expansion or contraction caused by

20 heating or cooling). Appellant submits that upward and downward motion cannot occur simultaneously. Hence, the conjunction "or" appears in the

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claims, as agreed upon by the Office and Appellant during an Examiner
Interview of May 19, 2003.¹

Independent claim 47 recites subject matter similar to claim 27, however,
the core includes heat exchange members and at least a portion of the tube
5 extends adjacent to more than one of the heat exchange members.

Independent claim 52 recites a core having a heat exchange portion, a
fluid-permeable metal tube having a length and an end and including a motion
limiter extending radially therefrom to limit upward or downward axial motion of
the tube, a load bearing member positioned adjacent the core and a mount
10 positioned between the end of the tube and the core, wherein the mount is
capable of transferring loads between the tube and the core.

For independent claim 52, Appellant refers to the foregoing discussion of
independent claim 27 with respect to the motion limiter to limit upward or
downward axial motion of the tube.

15

(6) Grounds of Rejection to be Reviewed on Appeal

(a) In the Final Office Action dated February 8, 2005, the Office rejected
claims 27, 31, 34, 41-47 and 50 under 35 USC §102(b) as being anticipated by
USPN 5,975,197 to Kado ("Kado reference").

¹ As discussed in more detail below, the Interview Summary prepared by the Office states:
"Applicant will amend claims to further define a motion limiter as a ring attached in the tube to
limit axial motion in either upwardly or downwardly".

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(b) In the Final Office Action dated February 8, 2005, the Office rejected claims 27, 28, 30-32, 34, 41-48 and 50-52 under 35 USC §102(b) as being anticipated by USPN 4,967,836 to Lefebvre ("Lefebvre reference").

Claims 27, 31, 34, 41-47 and 50 were rejected under 35 USC §102(b) as being anticipated by the Kado reference and were also rejected under 35 USC §102(b) as being anticipated by the Lefebvre reference. Claims 28, 30, 32, 48, 51 and 52 were rejected under 35 USC §102(b) as being anticipated by the Lefebvre reference only (i.e., Lefebvre only claims).

10 (7) Argument

Preliminary Comments

The record is extensive. In an Examiner Interview held over two years ago (May 19, 2003), Appellant and the Office agreed to the language: a motion limiter to limit upward or downward axial motion of the tube. The Interview Summary of May 30, 2003 prepared by the Office states: "Applicant will amend claims to further define a motion limiter as a ring attached to the tube to limit axial motion in either upwardly or downwardly". Amendments were entered, however, the claims were rejected. Some rejections rely on the Kado reference while other rejections rely on the Lefebvre reference.

20 The Office succinctly summarized these rejections in the Advisory Action of May 10, 2005:

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(i) with respect to the Kado reference, "Therefore, the motion limiter (7) is capable of performing a function of limiting upward or downward axial motion of the tube if the tube is moved axially"; and

(ii) with respect to the Lefebvre reference, "Applicant is claiming 'to limit upward or downward axial motion' in an alternative language form".

Appellant submits that the Office erred as these foregoing reasons for rejecting the independent claims 27, 47 and 52 are unsupported by evidence of record. Appellant reiterates the arguments set forth in the Response to the Final Office Action:

(i) the Kado reference allows no motion, i.e., it discloses a fixed assembly ("Thereafter, the header cap, the side fin, and the side plate are integrally brazed in a furnace together with the entire heat exchanger" Kado reference at col. 2, lines 22-24); and

(ii) the Lefebvre reference allows for no downward motion ("The shoulder 50 also bears against the face 26 of the housing 28" Lefebvre reference at col. 3, lines 56-57) and the Lefebvre device would not function properly if upward motion occurred ("the seal 24 would be breached and leakage of oil would occur", Response to Final Office Action at page 24).

For these reasons alone, Appellant submits that the rejections with respect to the Kado reference are in error, that the rejections with respect to the Lefebvre reference are in error and that the pending claims are patentably distinguishable from the disclosed subject matter and teachings of the cited

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references. Additional arguments with citation to the record are presented below.

Standards

5 All rejections are under 35 U.S.C. §102(b). According to MPEP §2131 "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference".

The examiner has the initial burden of establishing a prima facie case of anticipation by pointing out where all of the claim limitations appear in a single
10 reference. See In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1665, 1667 (Fed. Cir. 1990); In re King, 801 F.2d 1324, 1327, 231 USPQ 136, 138-39 (Fed. Cir. 1986). In order for a claimed invention to be anticipated under 35 U.S.C. § 102, all of the elements of the claim must be found in one reference. See Scripps Clinic & Research Found. v. Genentech Inc., 927 F.2d 1565, 1576, 18 USPQ2d
15 1001, 1010 (Fed. Cir. 1991).

A reference must enable one of skill in the art to make the anticipating subject matter. Scripps Clinic & Research Fdn., 927 F.2d at 1576. If a cited reference is not enabling of anticipating subject matter, that subject matter cannot be used as a basis for a §102 rejection.

20

Specific Errors

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(a) Kado Reference. Appellant submits that the Office erred in rejecting claims 27, 31, 34, 41-47 and 50 under 35 U.S.C. §102(b) because the Kado reference does not disclose each and every element set forth in independent claims 27 and 47. For example, the Kado reference does not disclose the "motion limiter" recited in independent claims 27 and 47. And, as already mentioned, the Kado reference does not disclose a "motion limiter" to limit upward or downward axial motion.

(b) Lefebvre Reference. Appellant submits that the Office erred in rejecting claims 27, 28, 30-32, 34, 41-48 and 50-52 under 35 U.S.C. §102(b) because the Lefebvre reference does not disclose each and every element set forth in independent claims 27, 47 and 52. For example, the Lefebvre reference does not disclose the "motion limiter" recited in independent claims 27, 47 and 52. Further, even if various components can be construed to meet the terms of the claims, Appellant submits that the Lefebvre reference would not enable one of skill in the art to arrive at the subject matter as claimed.

(a) Rejections with Respect to the Kado Reference

Applicant filed a Request for Examiner Interview and an Examiner Interview was held on May 19, 2003. During the Examiner Interview, the Examiner indicated that he would prepare an Interview Summary. Applicant received an Interview Summary, dated May 30, 2003, which states: "Applicant

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will amend claims to further define a motion limiter as a ring attached to the tube to limit axial motion in either upwardly or downwardly".

Applicant filed a Response entitled "Supplemental Amendment to RCE of August 11, 2003 to Supplement Response After Final to Final Office Action Dated February 11, 2003, Which Was Not Entered Prior to RCE" that amended
5 Independent claims 27, 47 and 52 to recite, in part, "a tube including a motion limiter extending radially therefrom to limit upward or downward axial motion of the tube". Thus, this amendment met the language agreed to by the Office and Appellant during the Examiner Interview.

10 In the Final Office Action of February 8, 2005, the Office stated that the Kado reference disclosed a motion limiter (7) to limit upward or downward motion of the tube (2). In the Response to the Final Office Action, Appellant cited the Kado reference at col. 2, lines 19-24:

15 The header cap is temporarily fixed to the end of the header pipe by, for example, a spot weld formed by MIG spot welding, to close the end of the header pipe. Thereafter, the header cap, the side fin, and the side plate are integrally brazed in a furnace together with the entire heat exchanger.

20 Appellant once again submits that such an arrangement does not allow for limited movement of the header pipe with respect to the various components, i.e., they are "integrally brazed". Consequently, the header cap is part of a fixed arrangement of components and cannot be a "motion limiter" to limit upward or downward motion.

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For at least the foregoing reason, Appellant submits that the Office erred in rejecting claims 27, 31, 34, 41-47 and 50 under 35 U.S.C. §102(b) as being anticipated by the Kado reference.

5 (b) *Rejections with Respect to the Lefebvre Reference*

In the Final Office Action of February 8, 2005, the Office failed to explicitly state how the Lefebvre reference met the claim language "a tube including a motion limiter extending radially therefrom to limit upward or downward axial motion of the tube".

10 Regardless of this oversight, Appellant responded, indicating that the hexagonal shoulder 50 of the Lefebvre reference cannot serve as the "motion limiter" of the independent claims 27, 47 and 52. In particular, Appellant noted that the hexagonal shoulder 50 could not meet the language "to limit upward or downward motion of the tube".

15 As set forth in Appellant's Response to the Final Office Action of February 8, 2005, the Lefebvre reference states:

20 Turning now to FIG. 3, the mounting adaptor 18 is seen in greater detail. Adjacent the threaded end 22, the same includes a hexagonal shoulder 50 by which the adaptor 18 may be rotated with a suitable wrench to thread the end 20 into the engine block. The shoulder 50 also bears against the face 26 of the housing 28 of the heat exchanger to locate the same in place.

Lefebvre reference at col. 3, lines 51-57.

25 Appellant submits that the shoulder 50 does not act as a "motion limiter" to limit upward or downward axial motion of the tube. In particular, Applicant

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submits that there is no evidence that the shoulder 50 could possibly limit upward motion. Threads 22 exist above the shoulder 50 and, as shown in Fig. 1 of the Lefebvre reference, the threads 22 engage an oil filter 14 (col. 2, lines 23-28). Applicant submits that in such an arrangement, the shoulder 50 is fixed by engagement of the threads 22 in the oil filter 14. Further, a seal 24 carried by the oil filter 14 sealingly engages the face 26 of the housing 28 for the heat exchanger 16 (col. 2, lines 36-38). Further, if the shoulder 50 moved axially upward, it is likely that the seal 24 would be breached and leakage of oil would occur.

Consequently, Appellant submits that the Lefebvre reference does not disclose or enable the subject matter of claims 27, 28, 30-32, 34, 41-48 and 50-52. For at least the foregoing reasons, Appellant submits that the Office erred in rejecting claims 27, 28, 30-32, 34, 41-48 and 50-52 under 35 U.S.C. §102(b) as being anticipated by the Lefebvre reference.

15

Conclusion of Arguments

Appellant respectfully submits that the evidence of record and arguments based on this evidence show that the Office erred in rejecting the claims. Should any issue remain that prevents furtherance of this Appeal, the Board or Office is encouraged to contact the undersigned attorney to discuss the unresolved issue.

20

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Respectfully Submitted,

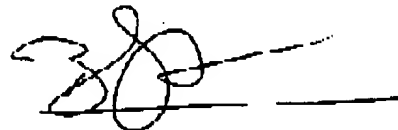
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5

Dated: 8-8-05



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10

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APPENDIX

Detailed Listing of All Claims 1-55

Claims 1-26 (Cancelled)

- 5 Claim 27 (Previously presented): A heat exchanger comprising:
- a. a core having a heat exchange portion;
 - b. a fluid-permeable metal tube including a motion limiter attached thereto and extending radially therefrom to limit upward or downward axial motion of the tube, wherein at least a portion of the tube extends into the core
 - 10 and is capable of being in contact with the core to transfer loads between the tube and the core, to provide support to the core and to increase the stiffness of the core, and wherein the tube is positioned at least adjacent to the heat exchange portion of the core;
 - c. a load bearing member positioned adjacent the core; and
 - 16 d. a first mount positioned between the tube and the load bearing member, so that the load bearing member can receive loads from the tube via the motion limiter.

- Claim 28 (Previously presented): The heat exchanger of Claim 27, wherein the
- 20 first mount is adjustable to allow the tube to expand separately from the load bearing member.

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Claim 29 (Withdrawn): The heat exchanger of claim 27, wherein the first mount
is one from the group of a weld and a brazing.

Claim 30 (Previously presented): The heat exchanger of Claim 27, further
5 comprising a manifold for passing a fluid from and to the core.

Claim 31 (Previously presented): The heat exchanger of Claim 27, wherein the
heat exchanger further comprises a second mount positioned between the tube
and the core, wherein the second mount is capable of transferring loads
10 between the tube and the core.

Claim 32 (Previously presented): The heat exchanger of Claim 28, wherein the
first mount comprises:
a channel defined by the load bearing member, wherein the
16 motion limiter is received by the channel such that the movement of the motion
limiter is restrained by the channel.

Claim 33 (Withdrawn): The heat exchanger of claim 30, wherein the tube is
substantially solid.

20

Claim 34 (Previously presented): The heat exchanger of Claim 31, wherein the
first mount is capable of substantially restraining axial movement of the tube

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and wherein the second mount is capable of substantially restraining lateral movement of the tube.

5 Claim 35 (Previously presented): The heat exchanger of Claim 34, wherein the tube further comprises a length and a core end, wherein the core end is positioned within the core and wherein the first mount is positioned along the length of the tube and the second mount is positioned near the core end of the tube.

10 Claim 36 (Previously presented): The heat exchanger of Claim 35, wherein the second mount is a sliding mount capable of receiving substantially lateral loads from the tube while allowing the tube to expand along its length.

15 Claim 37 (Previously presented): The heat exchanger of Claim 36, wherein the second mount comprises a cavity defined within the core, wherein the cavity is positioned about the core end of the tube.

20 Claim 38 (Withdrawn): The heat exchanger of Claim 37, wherein the second mount further comprises a flared portion of the duct extending at least adjacent to the cavity.

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Claim 39 (Withdrawn): The heat exchanger of Claim 37, wherein the second
mount further comprises a limiter extending from the cavity into the tube.

5 Claim 40 (Withdrawn): The heat exchanger of Claim 39, wherein the limiter
further comprises a limiter flared portion extending at least adjacent to the tube.

Claim 41 (Previously presented): The heat exchanger of Claim 27, wherein the
heat exchange portion comprises a layering of heat exchange members.

10 Claim 42 (Previously presented): The heat exchanger of Claim 41, wherein the
tube is positioned at least adjacent the heat exchange members, so to limit
movement of the heat exchange members and to receive loads from the heat
exchange members, so to increase the stiffness of the core.

15 Claim 43 (Previously presented): The heat exchanger of Claim 42, wherein the
tube is positioned through at least one of the heat exchange members.

Claim 44 (Previously presented): The heat exchanger of Claim 43, wherein the
tube defines a passage therewithin, and wherein the tube is permeable so that
20 the passage is in communication with the heat exchange portion of the core.

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Claim 45 (Previously presented): The heat exchanger of Claim 27, wherein the tube has a longitudinal axis and wherein the first mount restrains the tube so to allow the transfer of loads aligned substantially with the longitudinal axis of the tube, from the tube via the motion limiter to the load bearing member.

5

Claim 46 (Previously presented): The heat exchanger of Claim 45, wherein the first mount restrains the tube so to allow the transfer of torsional loads from the tube via the motion limiter to the load bearing member.

10 Claim 47 (Previously presented): A heat exchanger comprising:

a. a core having a heat exchange portion, wherein the heat exchange portion comprises a layering of heat exchange members, and wherein the heat exchange members are capable of being displaced substantially laterally;

15 b. a fluid-permeable metal tube having a length and including a motion limiter extending radially therefrom to limit upward or downward axial motion of the tube, wherein at least a portion of the tube extends adjacent to more than one of the heat exchange members and is capable of being in contact with the heat exchange members to transfer loads between the tube
20 and the heat exchange members, to provide support to the core and to increase the stiffness of the core;

c. a load bearing member positioned adjacent the core; and

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d. a first mount positioned between the tube and the load bearing member, so that the load bearing member can receive loads from the tube via the motion limiter.

5 Claim 48 (Previously presented): The heat exchanger of Claim 47, wherein the first mount comprises:

a channel defined by the load bearing member, wherein the motion limiter is received by the channel such that the movement of the motion limiter is restrained by the channel.

10

Claim 49 (Withdrawn): The heat exchanger of claim 47, wherein the first mount is one from the group of a weld and a brazing.

15 Claim 50 (Previously presented): The heat exchanger of Claim 47, wherein the heat exchanger further comprises a second mount positioned between the tube and the core, wherein the second mount is capable of transferring loads between the tube and the core.

20 Claim 51 (Previously presented): The heat exchanger of Claim 50, wherein the second mount is a sliding mount capable of receiving substantially lateral loads from the tube while allowing the tube to expand along its length.

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Claim 52 (Previously presented): A heat exchanger comprising:

- a. a core having a heat exchange portion;
- b. a fluid-permeable metal tube having a length and an end and including a motion limiter extending radially therefrom to limit upward or downward axial motion of the tube, wherein at least a portion of the tube extends into the core so that the end of the tube is positioned within the core, wherein the tube is capable of being in contact with the core to transfer loads between the tube and the core, to provide support to the core and to increase the stiffness of the core, and wherein the tube is positioned at least adjacent to the heat exchange portion of the core;
- c. a load bearing member positioned adjacent the core; and
- d. a mount positioned between the end of the tube and the core, wherein the mount is capable of transferring loads between the tube and the core.

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Claim 53 (Previously presented): A heat exchanger comprising:

- a. a core having a heat exchange portion;
- b. a tube including a motion limiter attached thereto and extending radially therefrom to limit upward or downward axial motion of the tube, wherein at least a portion of the tube extends into the core and is capable of being in contact with the core to transfer loads between the tube and the core, to provide

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support to the core and to increase the stiffness of the core, and wherein the tube is positioned at least adjacent to the heat exchange portion of the core;

c. a load bearing member positioned adjacent the core;

d. a first mount positioned between the tube and the load bearing

5 member, so that the load bearing member can receive loads from the tube via the motion limiter; and

e. a second mount positioned between the tube and the core,

wherein the second mount is capable of transferring loads between the tube and the core;

10 wherein the tube further comprises a length and a core end, wherein the core end is positioned within the core, wherein the first mount is positioned along the length of the tube and the second mount is positioned near the core end of the tube and wherein the first mount is capable of substantially restraining axial movement of the tube and wherein the second mount is
15 capable of substantially restraining lateral movement of the tube.

Claim 54 (Previously presented): The heat exchanger of Claim 53, wherein the second mount is a sliding mount capable of receiving substantially lateral loads from the tube while allowing the tube to expand along its length.

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Claim 55 (Previously presented): The heat exchanger of Claim 54, wherein the second mount comprises a cavity defined within the core, wherein the cavity is positioned about the core end of the tube.